Atmos. Chem. Phys. Discuss.,
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Technical Note: Preparation and purificationof atmospherically relevant α-hydroxynitrate esters of monoterpenes" *by* Elena Ali McKnight et al.

Anonymous Referee #4

Received and published: 31 August 2019

General Comments:

The manuscript presents synthesis methods for nitrate esters with relevance to terpene oxidation products in the atmosphere. The authors report preparation and purification of nine nitrate esters and additionally provide some details on unsuccessful methods. The information contained in this manuscript will be of interest to atmospheric chemists looking into nitrate radical oxidation products and I recommend acceptance after the following comments are addressed.

Specific comments:

1. Was the HPLC listed on page 3 line 12 used on the Orbitrap? If so, what conditions

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Discussion paper

were used (solvents, gradient, spray conditions, etc.). Were both positive and negative ion mode used? How was the instrument mass calibrated?

2. Acronyms I noticed that should be added to the list: CV, TLC, br, dq and qd, vs, Rf etc.

3. Exact mass measurements were only provided for a subset of the samples. Why is this the case? Also, the expected exact masses for the anions are incorrect, check to make sure the mass of the electron has been added. The expected exact mass for C10H16O4N- is 214.10848. (page 9 line 6 and page 10 line 16).

4. Methanolysis products were observed when methanol was used as the analysis solvent (page 18). Were these the only products observed or were the desired products also observed? Did this occur for all the nitrate esters? Also, please clarify what M+ is for each of the masses. I can see how m/z 185.1 is formed but I do not see where m/z 223.13 is coming from. Also, are these exact mass measurements? If so, providing more numbers after the decimal is a good idea.

5. Figure 7 is very crowded, especially at the far right side on top. I recommend providing a little more space between compounds 22, 23 and 24 so that they are easier to see.

Technical notes:

1. Incomplete citation on page 2, line 10

2. m/z should be italic throughout

3. Formatting on the citations looks a little odd, especially the spacing between the comma and the dates

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